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(71) Applicant (for all designated States except US): **CHIRON**  
SRL [IT/IT]; Via Fiorentina 1, I-53100 Siena (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PIZZA**, Maria-  
grazia [IT/IT]; Chiron SRL, Via Fiorentina, 1, I-53100  
Siena (IT). **SERRUTO**, Davide [IT/IT]; Chiron SRL,  
Via Fiorentina 1, I-53100 Siena (IT). **RAPPUOLI**, Rini  
[IT/IT]; Chiron SRL, Via Fiorentina 1, I-53100 Siena (IT).

(74) Agents: **MARSHALL**, Cameron, John et al.; Carpmals  
& Ransford, 43 Bloomsbury Square, London WC1A 2RA  
(GB).

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(54) Title: IMPROVED BACTERIAL OUTER MEMBRANE VESICLES

(57) Abstract: Existing methods of meningococcal OMV preparation involve the use of detergent during disruption of the bacterial membrane. According to the invention, membrane disruption is performed substantially in the absence of detergent. The resulting OMVs which retain important bacterial immunogenic components, particularly (i) the protective NspA surface protein, (ii) protein NMB2132 and (iii) protein NMB 1870.A Typical process involves the following steps: (a) treating bacterial cells in the substantial absence of detergent; (b) centrifuging the composition from step (a) to separate the outer membrane vesicles from treated cells and cell debris, and collecting the supernatant; (c) performing a high speed centrifugation of the supernatant from step (b) and collecting the outer membrane vesicles in a pellet; (d) re-dispersing the pellet from step (c) in a buffer; (e) performing a second high speed centrifugation in accordance with step (c), collecting the outer membrane vesicles in a pellet; (f) re-dispersing the pellet from step (e) in an aqueous medium.

## INTERNATIONAL SEARCH REPORT

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## A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal, MEDLINE, BIOSIS, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 02 062378 A (SMITHKLINE BEECHAM BIOLOG ; POOLMAN JAN (BE); DENOEL PHILIPPE (BE); 15 August 2002 (2002-08-15) *cf. abstract, page 2, 1st para., page 10, 2nd para., page 14, 2nd para. page 24, lines 15-25, page 26, lines 9-18, claims 1/2*	1-18
Y	WO 01 91788 A (NAESS LISBETH MEYER ; STATENS INST FOR FOLKEHELSE (NO); HARBAK KARI) 6 December 2001 (2001-12-06) *cf. abstract, page 6, 2nd and 3rd paras., page 7, lines 7-20, page 24, line 3 bridging with page 25, line 14, claim 1/2*	1-18

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Stoltner, A

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	US 2002/110569 A1 (DAN M. GRANOFF, GREGORY R. MOE) 15 August 2002 (2002-08-15) *cf. abstract, page 6, feature '0068!, page 7, feature '0087! page 8, features '089!, '0091!*	1-18

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